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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,955	12/06/2004	Bernd Gromoll	1454.1586	8626

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EXAMINER

SCHUEERMANN, DAVID W

ART UNIT	PAPER NUMBER
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2834

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/516,955

Applicant(s)

GROMOLL ET AL.

Examiner

David W. Scheuermann

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) *
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

RCE

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/13/2006 has been entered.

Response to Arguments

Applicant's arguments filed 10/11/2006 have been fully considered but they are not persuasive in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philofsky, US 3271600 in view of Glauning, US 6087744, in further view of Heller et al.,

Art Unit: 2834

US 2999945, and in further view of Ogura et al., US 3906261. Philofsky, US 3271600

discloses:

An electrical machine comprising

A rotor rotatably mounted; (inherent)

A stator associated with said rotor in a stationary position¹⁰, and

A cooling device, cooling at least parts of said stator, including (inherent)

A **[refrigeration]** unit comprising at least one cold head having at least one cold surface 56; and

A closed line system (tubes 52 and ducts 18) containing:

A coolant, thermally coupled to the cold surface, and

Said line system, thermally coupling said cold head 56 to the parts of said Stator to be cooled, having discrete coolant areas associated with the parts of said stator to be

Cooled,

Wherein the heat generating parts of said stator are located at a geodetic lower level than the cold surface (inherent to cause the heated and boiled fluid to move to the heat exchanger) and **[in which a coolant is circulated by a thermosiphon effect]**, the coolant being heated

Or at least **[partially vaporized]** in the discrete coolant areas.

Philofsky, US 3271600 does not expressly disclose the bracketed material. It is noted that each of the secondary references can be independently combined with

Art Unit: 2834

Philofsky, US 3271600. Glauning, US 6087744 teaches using a thermosiphon to circulate cooling fluid for a stator to obviate the need for a separate pump, see column 3, lines 40-44. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to replace circulation pump 55 of Philofsky, US 3271600 with a thermosiphon. One of ordinary skill in the art would have been motivated to do this so that no separate pump is needed.

Furthermore, Heller et al., US 2999945 teaches using a refrigeration unit with its inherent cold head to cool an electric machine, see column 1, lines 43-48, to allow the machine to operate at its maximum load. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a refrigeration unit with a cold head in to cool cooling fluid of the device of Philofsky, US 3271600. One of ordinary skill in the art would have been motivated to do this to enhance the cooling effect.

Finally, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a vaporizable coolant. One of ordinary skill in the art would have been motivated to do this to enhance the cooling effect. Ogura et al., US 3906261 disclose use of a two-phase coolant, for the inherent purpose of using the latent heat of vaporization to cool the stator core. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a two-phase coolant in the device of the combination of Philofsky, US 3271600. One of ordinary skill in the art would have been motivated to do this the take advantage of the

Art Unit: 2834

large heat capacity of the latent heat of vaporization of the cooling fluid to more effectively cool the stator.

Re claim 12, note cooler 56 of Philofsky, US 3271600, which is enhanced with the refrigeration unit of Heller et al., US 2999945.

Re claims 13-19 note that the half coils 16 for cooling channels, which traverse the axial length of the core and are coupled to every lamination of core 10.

Re claim 20, note radial vent ducts 14.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David W. Scheuermann whose telephone number is 571-272-2035. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached at (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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December 29, 2006

